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BIOLOGICAL NOTES ON SOME COLORADO DIPTERA*

By CARL F. BAKER, Fort Collins, Colo.

The Diptera mentioned in the following notes were determined either through Dr. Riley, or by Mr. C. H. T. Townsend.

Cecidomyia siliqua Walsh.—Galls identical with those of this species brought from Michigan; are common about Fort Collins on *Salix amygdaloides*..

Cecidomyia alticola Cockerell.—A gall was found at Fort Collins on *Artemisia dracunculoides*, which answers the description of the gall of this species (see The Entomologist, 1890, p. 281).

Subula pallipes Lw.—Large numbers of the larvæ of this species were obtained by Prof. Gillette, at Trinidad, under the bark of a fallen cottonwood log. The flies emerged 5–21 to 6–9. A description of the larva and pupa has been published by Mr. Townsend.

Argyra mœba œdipus Fab.—Reared from nests of several species of *Odynerus* at Fort Collins. In the larval stage it is a true external parasite. Flies emerged 5–3 to 6–12.

Eristalis hirtus Lw.—Reared from maggots found in ooze

* From the seventh bi-monthly report of the Say Memorial Chapter of the A. A.

about the mouth of a drain at Fort Collins. Flies emerged from 4–11 to 5–3.

Jurinia apicifera Wlk.—This is one of many parasites which help to reduce the numbers of *Clisiocampa fragilis*, the larvæ of which are so enormously abundant on quaking ash and *Cercocarpa* in various parts of Colorado. From material brought from Georgetown, by Prof. Gillette, numerous flies emerged from 7–30 to 8–2.

Masicera eufitchiæ Twns.—A common parasite on *Thamnonoma flavicaria* and *T. 4-linearia* at Fort Collins. Flies emerged 7–15 and after.

Hyphantrophaga hyphantriæ Twns.—A single specimen was reared from *Vanessa milbertii* at Fort Collins, the fly emerging 7–19.

Tachina clisiocampæ Twns.—Reared from *Clisiocampa fragilis* with *Jurinia apicifera*. Flies emerged from 7–24 to 8–4.

Cyrtoneura stabulans Fab.—At Fort Collins in squash roots rotting from the attacks of *Anasa tristis*; maggots of this fly were found in abundance. Puparia taken from the earth adjoining the roots gave flies from 7–29 to 8–23.

Oestrus ovis L.—A number of sheep on the college farm died last year from the attacks of this fly. After death occurred, blood and mucous oozed from the nasal cavities and softened the adjoining earth, otherwise the maggots would have been unable to bore down. Maggots taken from the blood moistened earth and placed in a breeding cage, gave flies about six weeks after.

Trypeta canadensis Lw.—A very common gooseberry pest in the vicinity of Fort Collins. Infested berries were gathered during the Fall, the maggots passing from them into the earth. The next Spring numerous flies emerged on 4–30.

Trypeta bigelovii Cockerell.—Galls were found abundant on *Bigelovia*, at Dolores, by Prof. Gillette. Flies emerged 6–29.

Trypeta solidaginis Fitch.—The galls of this fly are very common on *Solidago canadensis* in the vicinity of Fort Collins. Flies emerged from 5–7 to 5–23. A single *Eurytoma gigantea* Walsh (determined by Mr. Ashmead) was also obtained from the galls.

The above are a few out of a considerable number of flies reared in Colorado, for the greater part of which it has been impossible to obtain names.

THE MAGNOLIA-BLOSSOM TORTRICID.

Cacœcia magnoliana Fernald.

By M. V. SLINGERLAND, Cornell University, Ithaca, N. Y.

In June, 1891, Prof. W. W. Rowlee, of the Botanical Department, discovered that many of the blossoms on a cucumber-tree (*Magnolia acuminata*) not far from the campus were being destroyed by a caterpillar; he had previously observed that this tree seldom fruited fully. Several of the infested blossoms were brought to the insectary, placed in cages, and the adult insect reared. Dr. Fernald decided that it was a new species, and he soon described the moth (See "Canadian Entomologist," xxiv, p. 122). The half-tone illustration of the moth here given (natural size) will facilitate the determination of the species from Dr. Fernald's careful description.

The caterpillars fed ravenously for several days after they were put in the cages. They attacked all parts of the flower, but more especially the petals, which they bored through and through as shown by the holes in the blossom (natural size) in the illustration. The large thick petals were tied together by numerous silken cords and the caterpillars reveled within; usually from one to three worms occupied a blossom.

By June 8, most of the caterpillars had become full grown. They were then of a light semi-transparent green color, lighter on the venter. Length, 20 mm. Head, considerably narrower than the body and light brown in color with black spots caudad of the black eye-spots. Thoracic shield greenish black, darker on the sides. Two black spots occur on the sides of the first thoracic segment between the shield and the blackish legs. The other four true legs and the five pairs of pro-legs are nearly like the body in color. The body is sparsely clothed with long whitish hairs arising from slight whitish elevations. The head

and thoracic shield of a smaller specimen were of a dark brownish black color.

One larva pupated in a thin white silken cocoon attached to one of the petals; this is probably the normal place of pupation. Other larvæ pupated on the glass sides of the cage, or on the muslin cover. All had pupated by June 10.

When first formed the pupæ are of a light green color. They gradually change to a dark brown color, lighter on the venter. Length, 14 mm. Two transverse rows of minute spines project caudad on the dorsum of each abdominal segment. The body is sparsely clothed with long white hairs arranged similar to those on the larvæ. The pupa firmly attaches itself to the cocoon by eight strong hooklets, two arising from each side of the long narrow cremaster and four from its end. The pupal stage lasts from ten to fifteen days.

Most of the moths had appeared by June 22; none emerged after June 25. Probably eggs are soon laid, and the young larvæ work on the leaves, perhaps becoming half grown by Fall, when they go into hibernation in inconspicuous hibernacula on the branches near the blossom buds. But, possibly the moths hibernate and lay their eggs on the blossom buds in the Spring; or, perhaps the insect passes the Winter in the egg.

Hundreds of Magnolia blossoms were destroyed by this Tortricid in 1891. No observations have since been made on its habits and life-history. Upon receipt of my bred specimens of the moths, Dr. Fernald wrote that he had then had the insect in his collection for nearly fifteen years.

———o———

On Cicindela formosa and C. venusta, with remarks on some sexual characters of the genus.

By H. C. FALL.

Among a small lot of Coleoptera recently received from Mr. W. Knaus, of McPherson, Kans., were several examples each of the two beautiful tiger beetles *Cicindela formosa* and its so-called variety *venusta*. On placing the fresh specimens in my cabinet and surveying the two series, the difference in facies struck me as being something unusual, even in this genus of variable species. A subsequent somewhat careful investigation

leads me to believe that we really have to do with two entirely distinct species. In his synopsis of the *Cicindelidæ*, Schaupp merely says, in speaking of *venusta*, "differs (from *formosa*) in being more slender and convex." In the table of species the middle band is mentioned as being more perpendicular and the size is given for *formosa* 17–18 mm., for *venusta* 13–15 mm.

Here, then, we have noted a difference in form, size and markings; let us consider their value as indicating specific distinction. The latter is certainly of least importance, and of itself would signify nothing; it may then be dismissed with the remark that in all the specimens examined there is a small, yet constant difference in this respect. Size also is usually of little or no consequence, and yet among all our varieties of *Cicindela* there are nowhere else any appreciable variations of size within specific limits, with the single exception of *dorsalis* and its variety *saulcyi*, and these are almost perfectly connected by *media*. The difference in form seems to me of more importance, and indeed has no parallel among our species. *Formosa* is not only always larger, it is also invariable stouter than *venusta*. A careful measurement shows that the average ratio of length to width of elytra is in *formosa* 100–66⅔, and in *venusta* 100–60. The adjacent extremes are well separated, in fact there seems to be very little variation in either case from the above averages. While, then, we might not safely lay much stress on either of the above differences by itself, their invariable association adds greatly to the significance of each, and forms a mass of presumtive evidence, which, in the absence of any positive proof to the contrary, would ordinarily be considered conclusive. Fortunately, however, we need not stop here. In the form of the labrum we have another means of separation. In *venusta* this organ is more strongly produced in front and more feebly toothed. The difference is entirely independent of sex, and while not very great, the practiced eye could accurately place every specimen by an examination of it alone.

Finally, in the emargination of the sixth ventral of the male we have a character of the greatest importance. Every student recognizes the exceptional value of secondary sexual characters —their invariability rendering them when present of the utmost service in separating closely allied species. In the males of *formosa* and *generosa* the sixth ventral is broadly, feebly, trian-

gularly emarginate, while in *venusta* the emargination is deeper and narrowly oval.

Since *formosa* and *venusta* inhabit the same region, and have in fact for several years been taken together by Mr. Knaus, it is reasonable to suppose that if they are merely varieties of one species, intermediate forms would occasionally occur. A letter of inquiry addressed to Mr. Knaus concerning this and some other points, brings an interesting reply, a part of which I quote below.

"I have quite a large series of duplicates of both *formosa* and *venusta* and there is no trouble in separating them. *Formosa* is uniformly more robust—there is quite a variation in the width of the markings, but the middle band is always shorter and less bent downward than in *venusta*. The humeral lunule in *venusta* is also invariably less bent and extends further back than in *formosa*, sometimes almost uniting at the tip with the middle band. I have never seen the two *in coitu*, but have frequently thus taken *venusta*. *Formosa* is stronger in flight, and, if anything, more wary than *venusta*. I have really no evidence that *formosa* and *venusta* intergrade. I have been inclined to the belief for some time that they were distinct species."

The above remarks are certainly confirmatory of my conclusions, and I would only say in dismissing the subject that if any one possesses examples which can fairly be considered intermediate, or any facts which indicate specific identity, I would hold it a personal favor to be informed of them.

Having in the foregoing investigation been incidentally led to make some comparative study of secondary sexual characters, I am prompted to add one or two remarks in this connection. The male characters which have been given as common to all the species of the genus are "Three joints of anterior tarsi dilated with short silken pubescence beneath, sixth ventral segment broadly emarginate, middle tibiæ pubescent on the outer side—(except *pilatei* and *belfragei*)." The degree of emargination of the sixth ventral, while practically constant within specific limits, varies greatly in different species. It appears to reach its greatest development in *circumpicta* and *togata*, where it extends nearly two thirds the length of the segment, and from this extreme it gradually decreases, until in *cuprascens*, *puritana* and *macra*, it becomes exceedingly feeble, or entirely wanting. In

hirticollis, *repanda* and its varieties, and less conspicuously in *limbata*, the emargination lies not upon the median line of the body, but noticeably to the left. A somewhat similar sexual asymmetrical modification of the last ventral has been recorded in the Pselaphide genus *Sonoma* (*Faronus*), and in the Staphylinide genus *Palaminus*, but so far as I know the peculiarity is common to all species of these genera. It therefore seems very remarkable that so aberrant a structure should affect this small number of species in the very midst—as it were—of a homogeneous genus.

The last of three above named sexual characters—males with the intermediate tibiæ externally pubescent—females glabrous, I can not all appreciate. The difference seems to me to be merely comparative, at least I have not yet found a specimen which does not show this pubescence, and while it is usually more conspicuous in the males, in not a few cases the difference is so slight as to be barely perceptible.

A character which in very many species possesses a positive value, and to which I do not remember to have seen any allusion, exists in the extent of the pubescence which clothes the sides of the abdominal segments. In the males of most species the pubescence is always of nearly equal density on all the segments, while in the females the last segment is either entirely glabrous, or with at most a few hairs at the base. *Dorsalis*, *puritana*, *lepida*, *gabbii*, *togata*, *scutellaris*, *tenuisignata* and *sigmoidea* among others well illustrate this point. In some species (*rectilatera*, *circumpicta*) the pubescence ends abruptly with the fourth segment, and occasionally (*vulgaris*, *abdominalis*) the last three segments are unclothed. It is worthy of mention that the females of the western varieties of *repanda* (*oregona* and *guttifera*) entirely lack the pubescence at the sides of the abdominal segments; at least this is true in the fairly good series which I possess, and will, I suspect, prove characteristic.

In the Deutsche Ent. Zeits. 1895, p. 58, Mr. J. Weise suggests the new generic name *Fabricianus* for our *Cryptocephalus auratus*. In 1880 (Trans. Am. Ent. Soc. viii, p. 196), Dr LeConte suggests the name *Diachus* for the same species and six others. In the Biologia i, p. 149, Mr. Bates describes a *Bembidium lucidum* as a new species. The same was described by Dr. LeConte under the same name in 1848, Ann. Lyc. iv, p. 466.—G. H. Horn.

A MITE-LARVA PARASITIC ON TETTIX GRANULATUS.

By JOSEPH L. HANCOCK.

An interesting and as yet unidentified microscopical larva of a mite that I discovered on the pronotum of a small locust, *Tettix granulatus*, is here presented.* The accompanying drawings, Plate viii, figs. 1 and 2, illustrate this better than a word description, though some of the characters are especially noteworthy. *Description*—Hexapodal larva, length of body (to end of rostrum.) 18 mm. width .25 mm.; yellowish with blackish hairs. Abdomen oblong, clothed above with numerous short feathery hairs distributed below and above as shown in figs. 1 and 2 of Plate. The head is flattened, pyramidal, produced into a blunt pointed rostrum, the latter curved downwards and slightly dilated toward the end. A slender hair is inserted on the underside of the rostrum near the tip, on each side, a short distance from the middle line. The palpi are strong, thickened at the base, two-jointed, with an extra thumb process at the end, which is armed with two curved claws and a few short, stiff hairs, on the outerside of the thumb and the two main joints of palpi a single feathered hair grows from each, the one on the first joint being long and particularly noticeable. The legs are long, rather slender, of nearly equal length, composed of six articles, the tarsus of each leg ending in a pair of delicate hooks. Realizing the burden to science that a multiplying of scientific names incurs I have refrained from suggesting a name for this larva, as many have previously done when describing undetermined larval forms of mites.

EXPLANATION OF PLATE.

Fig. 1.—Ventral view of hexapodal larva, parasitic on *Tettix granulatus*. Original, greatly enlarged.

Fig. 2.—Dorsal view of same, correspondingly enlarged. Original.

ACANTHOCHALEIS NIGRICANS Cameron.—Yesterday (April 9), I was so fortunate as to capture a ♀ of this species at flowers of plum on the college farm, Las Cruces, New Mex. So far as I know, both genus and species are new to the U. S. fauna. The original specimen described by Cameron was from "Northern Sonora," collected by Morrison.—T. D. A. COCKERELL, Las Cruces, N. Mex.

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* The specimen of *Tettix* from which this mite was taken was collected by Prof. A. P. Morse, at Wellesley, Mass.

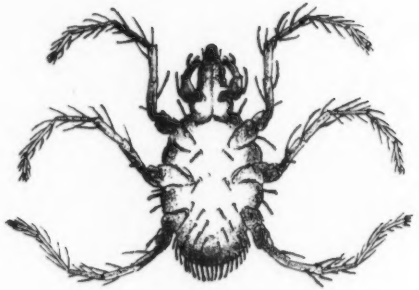

Fig. 1.

Fig. 2.

J.L. Hancock, Del.

A MITE-LARVA PARASITIC ON TETTIX GRANULATUS

See page 180.

Preliminary Notes on the Youngest Larval Stage of some Odonata.

By PHILIP P. CALVERT.

Availing myself of the facilities afforded by the Biological School of the University of Pennsylvania, I have recently studied, by means of sections and otherwise, the external and internal structure of the larvæ of *Gomphus exilis* Selys and of *Libellula pulchella* Drury as it is immediately after hatching from the egg. The larvæ were obtained by capturing the females while ovipositing, collecting the eggs in a tumbler of water and allowing them to remain undisturbed until hatched. The detailed results of these studies, it is hoped to publish later; a very brief summary of some of them follows, and only such facts as are believed to be new are mentioned.* It is my intention to eventually study the entire embryonic development of these insects.

In both species studied, the divisions of the alimentary canal, fore-, mid- and hind-gut, occupy relatively different positions from those of the old nymph and imago, in that the fore-gut extends only as far as the second thoracic segment, the mid-gut from the third thoracic to the third or fourth abdominal, the hind-gut from the latter point to the apex of the abdomen. It follows, therefore, that during larval development the three parts of the alimentary canal undergo a shifting backwards, accompanied by a *relatively* great decrease in the length of the hind-gut and, correspondingly, a *relatively* great increase in that of the mid-gut. This is correlated with the great increase in the length of the middle abdominal segments at transformation, due to the necessity for a long rudder or steering-apparatus behind the wings for the preservation of equilibrium in flight. No similar shifting of the abdominal ganglia occurs.

In both species there are *three*, and only three,† Malpighian tubules present, of approximately equal length (.3—.35 mm.), and three rectal glands. In *L. pulchella*, in front of the latter, are the beginnings of six rectal gills, but in *G. exilis*, with a longer embryonic period (216 to 240 hours, as compared with 144 to

* A summary of the information then existing in regard to the structure of the youngest larvæ of the Odonata is given by the present writer in Trans. Am. Ent. Soc. xx, pp. 195-6, October, 1893.

† For a recent discussion of the Malpighian vessels of insects, see W. M. Wheeler, "Psyche," May to December, 1893.

168 hours for *L. pulchella*) these structures have not yet begun to appear. The larvæ of *G. exilis* thus leave the egg in a less developed condition than do those of *L. pulchella*, as is also shown by the facts that food-yolk is still present in considerable quantity in the mid-gut of *exilis*, whereas none is to be seen in any part of the body of *pulchella*, and that, as a probable result of the foregoing, the mid-gut epithelium of *pulchella* is much thicker than that of *exilis*.

Moreover, neither of these species show any trace of tracheæ, blood vessels or reproductive organs, although tracheæ are stated and figured by Packard* to occur in *embryos* of *Diplax*, whose age, however, is not given, and they exist in *larvæ* of *Mesothemis simplicicollis* at sixteen days after oviposition and possibly earlier.

The form of labium characteristic for the subfamily to which the species belongs, is already present in the youngest larvæ of these two species, which also agree in possessing chitinous hairs on the dorsal side of the body, arranged in a bilaterally-symmetrical manner.

It is with a sad satisfaction that I acknowledge the aid and advice given by the late Professor John A. Ryder during a considerable part of these studies.

———o———

SAWDUST FOR STEAMING.

By B. J. B. LEMBERT.

How I came to use it would be too long a story to tell, but give it, hoping others will be benefited, as much as I have been. Mr. Wm. H. Edwards kindly furnished me with a description of his method of steaming insects; it superseded the use of sand steaming with me, but was not quite the thing for the mid and high Sierras; it required too much watching, and the thorax of the insects offered too much resistance to the passage of the pins through them. One day I filled an open tin dish with dampened sawdust, buried my papers with butterflies in them, in the sawdust, left them there forty-eight hours, and to my surprise the insects were pinned and spread with an ease I had never as yet experienced. I then tried to improve the method. I procured a tin-box six inches broad, eight inches long and three inches

* Proc. Bost. Soc. Nat. Hist. xi, pp. 365-372, 1868.

deep, put in a depth of two inches of dampened sawdust, and in this I buried my papers of insects and left them forty eight hours with like results. Again I buried two papers twenty-four hours and then took them out, placed them on the surface of the sawdust forty-eight hours longer, replaced the cover both times. With the last method a *Syneda* moth became so limp that the wings laid over on my thumb and forefinger, the pin ran through body as if it were a jelly. Another plan I adopted was to fill a tin fruit-preserving can with sawdust, place a piece of tissue paper on the surface of the sawdust, take my insects out of the packets and place them on the tissue paper, then place an inverted tin can that will fit and cover the rimmed mouth of the can containing the sawdust. The vacuum in the top can holds the vapor and forces it to return to make its escape close to the insect, thus having a double action as it were. It is clear that there is an increased volume of vapor over sand and being held in bounds doubles its action and is possibly slightly acidulated, but this I will leave for science to deal with. Try it entomologists, there is room for improvement. For soft bodied moths and microlepidoptera it works like a charm. Geometrids, Pyralids and smaller insects spread in from twelve to eighteen hours in the double can method, and with those that are left in longer, care must be taken in spreading to let the wings dry somewhat before putting on the bits of glass to keep them in place, as the wing may stick if too wet. This fact need hardly be stated to the experienced entomologist, but to those that are beginners caution is necessary. In using this method it will also be found that the antennæ and bodies can be adjusted in any desirable position.

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PSELAPHIDÆ.

By EMIL BRENDEL.

Bryaxis (*Reichenbachia*) **semirugosa** n. sp. is a dark umber-brown *Pselaphide* with legs and antennæ more dull reddish brown and 1.3 mm. long. Head, prothorax and abdomen polished impunctate, the elytra deeply and roughly variolate, the variolæ irregularly transversely, eyes small prominent; vertex quadrate with three large, equal confluent equidistant foveæ; clypeus transverse as long as the rather long, bilobed labrum. Antennæ about as long as the head and prothorax, the joints 3-7 oblong conical, the 8 smallest quadrate, 9 and 10 slightly transverse, rapidly increasing in width, 11 large, obliquely pointed; prothorax very

convex, wider than long, lateral fovea very large, the median one small, deep and circular. Elytra with the shoulders broad, rounded, the discal lines slightly impressed; first dorsal segment four times wider than long, border widely reflexed, the carinæ sharp, divergent, short more than one-fifth of the segmental width apart, disc at the base each side deeply depressed.

Male and female, East Alleghanies, Jerome Schmitt. It ranges near *R. cribricollis*.

In order to correct certain odd presumptions, I do here, for the last time, give the diagnoses of the following species:

R. gemmifer.—Pronotum with small, evenly distributed punctures, abdominal carinulæ very close, hardly visible beyond the elytra.

R. canadensis.—Pronotum coarsely punctured, in the ♀ smaller, carinæ sometimes almost as long as the segment, close at the base and divergent. Elytra and dorsum punctulate.

R. cribricollis.—Pronotum coarsely punctured almost variolate, carinæ less than one-third of the segmental width apart, slightly divergent.

R. puncticollis.—Pronotum evenly, sharply punctured, carina much more than one-third apart. *R. divergens* and *radians* have the pronotum impunctate, carinæ close at the base.

R. divergens.—Carinæ short, elytra unevenly punctured 1.2 mm. long.

R. radians.—Carinæ one-half the length of the segment, elytra impunctate, 1.5 mm. long.

R. inopia? Casey.—First insufficiently described, then compared with *Nisaxis tomentosa*, then the fabricant joined it to *rubicunda*, still later to *puncticollis*, and finally ruminating the same again disgorged it identical with *littoralis*.

Casey evidently does not know, what he is about in trying to save "*inopia* Cas."

Bryaxis labyrinthea Cas. is, indeed, very closely allied to *B. intermedia*, which also comes from New York, so closely that there is hardly room for a variety.

Rybaxis mystica Cas. a variety of *conjuncta*, described by me as *R. varicornis*,

Tychus testaceus Cas. formerly sworn to be different from *T. minor*, which is really the truth, is now again unsworn and said to be identical, probably in order to make two n. sp., which do

not differ from *T. minor* except in the "vertexal spiculæ," and not even among themselves according to the descriptions.

Oropus striatus, (subimpunctate) and *Oropus montanus* (strongly punctured) are good species. The rest of *Oropus* were several times reduced and restored.

Rhexidius asperulus nil

Sagola (not *Sonoma*) *tolulæ*, *isabellæ*, *corticina* and *parviceps* are good species; the rest, owing to the variation of sexual ventral distortions in almost every individual, are invalids.

If Casey found in LeConte's cabinet a *R. divergens* with punctured pronotum, the label has been misplaced by negligent, or perhaps willful hands. LeConte's collection ought to be watched better, to prevent handling it by light-fingered persons.

Casey commenced to do with the Pselaphidæ as he did with *Stenus*, *Trogophlœus*, *Sitones* and the Baridæ, but "Je ne voudrai pas etre violenté d'oter la fumier de ses synonymes."

———o———

AFTER COLEOPTERA.

By J. H. B. BLAND, Philadelphia, Pa.

From the 6th to 20th of July, 1884, I had the opportunity of collecting along the banks of Poko Poko Creek, which empties into the Lehigh River, at Parryville, Carbon County, Pa.; the creek flows between a series of mountains; the timber is mostly pine, interspersed with oak, hickory and maple; the soil surface is covered with small stones to such an extent that it looked as if it would discourage any agriculturist. Carabidæ were very scarce, and I found but few specimens—by beating I obtained *Corymbites hieroglyphicus*, *C. hamatus*, *Adelocera marmorata*, *Goes debilis*, *Leptostylus macula*, *Liopus alpha*, *Lyturgus querci*, *Hyperplatys aspersus*, *H. maculatus*, *Strangalia bicolor*, *S. famelica* and *Chrysobothris scitula*.

Two days I devoted to aquatic Coleoptera. On the edge of the creek I found two species of *Berosus*, two of *Dineutes*, two of *Haliplus*, two of *Dryops*. About one-quarter mile from the mouth of the creek there is a dam; the stream below, the distance of one hundred feet, has a considerable number of submerged plants, some having the appearance of moss, others have a round form; from these I captured quite a number of *Elmis*, *Stenelmis*,

and *Macronychus*. I used a fine brass-wire sieve, lifting the stones with the plants attached into the sieve; returning to the bank I had a white muslin cloth spread on the ground; distributing the plants on the cloth, many of the beetles left immediately, others I obtained by pulling them from the stones and washing them in the sieve; then using a lens in finding them; also picking them out of crevices with the point of a small pocket knife. I found plants growing on the slag, from an iron furnace, the most favorable for that kind of collecting. This portion of my work was at a depth of 8—16 inches of water. I also tried sinking pieces of wood, securing them by weights, which yielded a few specimens each day.

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Leucarctia rickseckeri.

Mr. L. E. Ricksecker has kindly presented to the American Entomological Society a pair of the fine species named in his honor by Dr. H. H. Behr in "Zoe," vol. iv, p. 247. *L. rickseckeri* may be described as follows:

It is about the size of small specimens of *L. acræa*. The wings of the female are immaculate, except a minute black discal spot on anterior wing. Body similar to *L. acræa*, but with the black spots fainter, sometimes obsolete. In the male the thorax and anterior wings are a diffused smoky color, immaculate, except the minute discal spot; posterior wings yellowish brown, with one discal and two or three submarginal spots quite indistinct and nearly obsolete. Both pairs of wings are brown underneath, with a few variable, obsolete, black points.

Mr. Ricksecker speaks of the species as follows: "June 11, 1891, I found three larvæ about full grown, similar in general appearance to those of *L. acræa* on a species of *Senecia*. They commenced spinning cocoons June 18, and three males emerged July 18, 1891. June 18, 1893, I visited the same place, and after a long day's diligent search I had twelve caterpillars. June 15 they commenced spinning cocoons; June 20 eight cocoons (the remainder escaped from the cage); July 5–12 six imagines—♂ 2, ♀ 4. Two cocoons contained parasites. Locality, Sonoma Co., Cala." (We have reproduced the above for the benefit of those who do not have the pleasure of reading "Zoe.")

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), in charge of the joint publication committees of the Entomological Section of the Academy of Natural Sciences, of Philadelphia, and the American Entomological Society. It will contain not less than 300 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

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PHILADELPHIA, PA., JUNE, 1895.

A NEW DEPARTURE.

(See page ii of cover.)

Dr. R. Ottolengui has inaugurated something new in entomology, at least in this country. Auction Sales of insects are quite common in England because entomologists are more numerous there than here. We think the plan is a good one, and we wish it success; there is no doubt but that Dr. Ottolengui will deal justly with all. Rule second we think is a mistake, and should be modified. We think that all kinds of material for which there is any sale should be listed. Many people want common material at a low price. Cabinets and apparatus might also be disposed of in the same way. There are also doubtless many small collections for sale that could be had at a small figure, and that would be a big aid to the beginner, especially if correctly named. As an example of the latter, the American Entomological Society has a large amount of duplicate Coleoptera that it would sell at almost any price as the space it now occupies is more valuable than the specimens. We will view with much interest the result of this first annual sale.

THE vesicatory principle of the blister-fly is called *Cantharidine*, and has been ascertained by experiment to reside more particularly in the wings than in other parts of the body. Our officinal insect is the *Cantharis vesicatoria;* and since the principal supply is from Spain, we call them commonly *Spanish-flies*. In Italy, the *Mylabris cichorii*, a native of the south of Europe, is used; and the *M. pustulata*, a native of China, is used by the Chinese, who also export it to Brazil, where it is the only species employed. In India also a species of *Meloe* is used, possessing all the properties of the Spanish-fly.—*Cowan's Curious Facts.*

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

Insect Life.—Since the above comments (see last NEWS) on the San José Scale were written, the New York "Sun" of April 3rd, has commented on some of the contents of this same number of "Insect Life," and in a somewhat different strain. "If you see it in the "Sun" it's so:" that is, what appears in every issue of that remarkably bright and interesting newspaper; but the difficulty is, although the "Sun" usually tells the truth, it does not always tell all the truth, and this is the case when it comments in rather a sarcastic and caustic manner upon two notes concerning the migration of the Cockroaches, and the record of an abnormal flight of butterflies. It intimates that this must necessarily be of vast importance to the agriculturists at large and gives the impression that it is practically all that this number of "Insect Life" contains. It fails to tell the whole truth, because it ignores the contribution to the life-history of the San José Scale, which is certainly practical, and the paper on the new cotton *Anthonomus*. The outcome of the frost in Florida, as far as the destruction of injurious insects is concerned, is certainly of some importance, and indeed with the possible exception of the two articles above mentioned comprising in all only two or three pages out of nearly eighty, everything in the number is decidedly practical. This brings me to the real point of this note! It has been stated with more or less authority that "Insect Life" was about to be discontinued at the end of the current volume. It is to be hoped that this is a mistake, and that the authorities will not be unfavorably influenced by criticisms of the character above referred to. The volumes of "Insect Life" contain a great amount of practical entomological information: they contain also much of scientific interest that is indispensible to the student of Economic Entomology. "Insect Life" has been criticised as journalistic in character, and so far as this has been the case it has been open to criticism; but this is a minor feature, which can be easily omitted without injuring the general character of the publication itself. It has also been criticised for containing descriptive and systematic matter which has no place in a government publication of that description. Admitting even this criticism to be valid, yet even with this feature omitted, there would remain a great amount of valuable material of an economic character, which is perfectly suitable for publication by the government and decidedly useful to agriculturists and to other working entomologists. It goes almost without saying that with a force of men, such as are in the employ of the Division of Entomology, many interesting observations are made outside of those investigations in which the gentlemen concerned are especially employed. Yet their special employment only is made to form the burden of the Annual Report and the subjects of periodical Bulletins issued from time to time. A vast number

of minor observations, hardly suitable for the Report, or the special Bulletins, would be wasted without an outlet like "Insect Life," and frequently it becomes very desirable to reach the farming community promptly with information that will be useful and can be copied and reprinted in the agricultural journals of the country at large. In the opinion of the writer it will be a serious mistake to discontinue now, after seven years, the publication of so useful a periodical as "Insect Life."

Vapors and Gases as Insecticides.—Within the last month three Bulletins have been received speaking of the use of vapors, either of bisulphide of carbon or hydrocyanic acid, for insecticide purposes. Bulletin 27 of the Iowa Station contains records of a series of experiments on melon lice, which do not seem to have been quite as successful or conclusive as those which were carried on by myself and recorded in Bulletin No. 109 of the New Jersey Station. I am not able to understand at present, the reasons for the differences in the result, because I have never had any revival of plant lice treated with the bisulphide after they were in my judgment dead. I have used the material since my melon lice experiments in a number of instances, on potted plants, and always with absolute success. So also I have had reports from growers of vegetables under glass that the material has proved successful in destroying plant lice on lettuces where the benches were covered with a sash. A few experiments with hydrocyanic acid gas are also recorded; but here also the success was only partial, and in rather strong contrast with the experiences recorded by Prof. Garman, in Bulletin No. 53, of the Kentucky Experiment Station. Mr. Garman found that using the gas would accomplish the desired end of killing plant lice in about four minutes, whereas the bisulphide would require about an hour; therefore the advantage in some directions certainly seems to be with the hydrocyanic acid gas. But this is such a violent poison that I confess to some hesitation in advising its use. After all it will need many more experiments before we can be certain of just what this gas will do. It may have a field larger than we now realize, and almost undoubtedly the introduction of this gas and the vapor of the bisulphide will make a considerable change in insecticide practice. It is another index of the change in the work of the Economic Entomologist, to which reference was made in the last number of the NEWS.

THE vulgar opinion that the ear-wig, *Forficula auricularia*, seeks to introduce itself into the ear of human beings, and causes much injury to that organ, is very ancient, but not founded on fact, for they are perfectly harmless. To this opinion the names of this insect in almost all European languages point; as in English, *ear-wig* (from Anglo-Saxon *eare*, the ear, and *wigga*, a worm; hence, also, our word *wiggle*); in French, *Perce-oreille*, and in German, *Ohr-wurm*. But, according to some writers, these arose from the shape of the wing when expanded, which then resembles the human ear; and *ear-wig* might easily be a corruption of ear-*wing*, —*Cowan's Curious Facts.*

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Twenty-five "extras" without change in form will be given free when they are wanted, and this should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

THE NEWS will not be published during July and August. This number contains 36 pages.

A CURIOUS PICTURE DISCOVERED AT HAMILTON COLLEGE.—A curious specimen of slow photography, says the New York Sun, came to light recently in the renovation of the collection of insects in the natural science hall at Hamilton College. It was years since the cabinets had been opened or the specimens moved or rearranged. In a corner of a cabinet that stood facing a window was a very large specimen of the common blue swallow-tail butterfly (*Papilio asterias*), which had been all but destroyed by butterfly lice, diminutive insects that work havoc among mounted specimens unless their inroads are guarded against by chemicals.

Inspector William P. Shepard, who was renovating the collection, removed the butterfly and was surprised to find beneath it, on the white paper with which the cabinet was lined, an exact reproduction of the insect, even to the most minute curves and points in the outline of the wings. The paper was carefully removed, and now forms an exhibit by itself in another part of the hall. The process of photography had perhaps consumed eight years, as the butterfly had remained in the cabinet undisturbed for at least that period.—*Philadelphia Record.*

PROFESSOR—"How many legs have insects?" Candidate—"Five per cent. of insects have no legs at all, 11 per cent. have one, 14 per cent. two or three, 10 per cent. four and five, but none six." Professor—"How in the world did you get this answer?" Candidate—"By carefully examining the collection belonging to the Hamilton College."

A NEW FOOD PLANT FOR HYPATUS (LIBYTHEA) BACHMANI.—This butterfly has been taken a number of times west of Lincoln, hovering around over the large tracts of wolf-berry (*Symphoricarpus occidentalis*), which covers the low ground near the creek. The eggs and larvæ have also been found on this shrub, and Mr. Roscoe Pound, a former student interested in the study of Lepidoptera, has collected and reared the larvæ to maturity on this wolf-berry. No hack-berry trees are to be found any-

where in the vicinity, and for that matter few are to be found about the city. Prof. Lawrence Bruner says he has never taken the larvæ on any other plant than the wolf-berry in Nebraska, and the butterfly is usually to be caught hovering near such a patch. As the *Hypatus bachmani* is a rather common butterfly in southeastern Nebraska, and the hack-berry trees are scarce, it is evident that its chief source of food in this region is found in the more common wolf-berry.—H. G. BARBER, University of Nebraska, Lincoln, Neb.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of species to be **limited to twenty-five** for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

[The Associate Editor, contemplating an extended absence from Philadelphia, offered his resignation to the chairman of the Publication Committee of the NEWS. While this has not been accepted, his editorial connection for the present will be nominal only, and beginning with the next (September) number the Entomological Literature will be under the charge of Mr. William J. Fox. It may be well to add that the Associate Editor has exercised his editorial functions, during the past five years, only in preparing the monthly summaries of the entomological literature and the annual indices to the volume.—P. P. C.]

1. THE ANNALS AND MAGAZINE OF NATURAL HISTORY. London, April, 1895.—Contributions to the phylogeny of the Arachnida.—On the position of the Acarina: The so-called Malpighian tubes and the respiratory organs of the Arachnida, J. Wagner (transl. from Jen. Zeit. Naturwis.). Description of a new suctorial millipede sent from Trinidad by Mr. J. H. Hart of the Royal Botanical Gardens, Trinidad, R. I. Pocock.

2. ZOOLOGISCHER ANZEIGER. Leipsic, April 8, 22, 1895.—On the Hydrachnid genera *Arrenurus* Duges and *Thyas* C. L. Koch, R. Piersig.

3. BULLETIN DE LA SOCIETE VAUDOISE DES SCIENCES NATURELLES (3), xxxi, No. 115. Lausanne, June, 1894 (received April 23, 1895).—Researches on the metamorphosis of the Lepidoptera (the formation of the imaginal appendices in the pupa of *Pieris brassicæ*), J. Gonin, figs., 5 pls.

4. THE BOTANICAL GAZETTE. Madison, Wis., April, 1895.—Flowers and insects—xiv, C. Robertson [*Gentiana*, *Phlox*, *Mimulus*, etc.].

5. THE KANSAS UNIVERSITY QUARTERLY, iii, 4. Lawrence, Kans., April, 1895 (received April 23).—Diptera of Colorado and New Mexico, W. A. Snow. Supplementary list of North American Syrphidæ, id. *Dialysis* and *Triptotricha*, S. W. Williston, fig. New Bombyliidæ, id.

6. BULLETIN No. 28. Hatch Experiment Station of the Massachusetts Agricultural College. Amherst, Mass., April, 1895.—Canker worms, army worm, corn worm, red-humped apple tree caterpillar, antiopa butterfly, currant stem-girdler, imported elm bark louse, greenhouse *Orthezia*, C. P. Lounsbury.

7. THE ENTOMOLOGIST'S RECORD. London, April 15, 1895.—Iris, G. M. A. Hewett. Notes on butterfly pupæ, with some remarks on the phylogenesis of the Rhopalocera (concl.), T. A. Chapman.—May 1, 1895. The genus *Smerinthus*, A. Bacot. Variation considered biologically: being some notes suggested by the Romanes lecture of 1894, J. W. Tutt. On wing structure, J. A. Moffat. Pre-occupied generic names in the Lepidoptera, A. R. Grote.

8. ARCHIV DES VEREINS DER FREUNDE DER NATURGESCHICHTE IN MECKLENBURG, 48 Jahrgang, 1894, 1 Abtheil. Guestrow, 1894.—The beetle remains of the Dobbertine Lias, E. Geinitz-Rostock, 1 pl.

9. SITZUNGS-BERICHT DER GESELLSCHAFT NATURFORSCHENDER FREUNDE ZU BERLIN, March 19, 1895.—On the participation of the male of a Belostomid in the care of the young, E. Schmidt.

10. BULLETIN DES SEANCES DE LA SOCIETE NATIONALE D'AGRICULTURE DE FRANCE, lv, 1. Paris, 1895.—*Neuronia popularis* in the pasturages of the north of France, M. Laboulbene.

11. COMPTES RENDUS. SOCIETE DE BIOLOGIE. Paris, April 6, 1895.—On the progenesis of psoric Sarcoptidæ, Dr. Trouessart.

12. LEPIDOPTERA INDICA. By F. Moore. Pt. xx. London, L. Reeve & Co., 1895 (received April 30, 1895).—Contains pp. 177-192 of vol. ii, pls. 147-154 [Amathusiinæ].

13. THIRD SUPPLEMENT to the List of Coleoptera of America, North of Mexico, by Samuel Henshaw. Philadelphia: American Entomological Society, 1895; 62 pp.—"The present supplement to the List of Coleoptera of America north of Mexico (Philadelphia, 1885), includes all the additions and corrections contained in the first and second supplements; also such as have been noted since May, 1889. The species are numbered continuously with the List" and the total now amounts to 11,255.

14. DIE KÄFER VON MITTELEUROPA. Die Käfer der œsterreichisch-ungarischen Monarchie, Deutschlands, der Schweiz, sowie des franzœsischen und italienischen Alpengebietes. Bearbeitet von Ludwig Ganglbauer.

Zweiter Band. Familienreihe Staphylinoidea. I. Theil Staphylinidæ, Pselaphidæ. Mit 38 Holzschnittfiguren im Text. Wien, Carl Gerold's Sohn, 1895, pp. vi, 881.

15. LE NATURALISTE. Paris, April 15, 1895.—Acridophagous birds, M. Forest.

16. BIOLOGISCHES CENTRALBLATT. Erlangen, April 15, 1895.—Felix Plateau's observations and experiments on the means of protection of *Abraxas grossulariata*, H. Tiebe.

17. ANNALES DES SCIENCES NATURELLES, ZOOLOGIE (7), xix, 4-6. Paris, 1895.—Glandular apparatus of the Hymenoptera (concl.), L. Bordas, 3 pls.

18. LA NATURE. Paris, March 16, April 20, 1895.—Fossil insects of Primary times, C. Brongniart, 3 figs.

19. THE CANADIAN RECORD OF SCIENCE, vi, 2. Montreal, April, 1894 (received May 7, 1895).—Ancient Myriapods, G. F. Matthew.

20. NOTES FROM THE LEYDEN MUSEUM, xvi, 3-4, July-October, 1894 (received May 7, 1895).—Descriptions of some new Brenthidæ, A. Senna.

21. KNOWLEDGE. London, May 1, 1895.—The Winter-life of insects—ii, E. A. Butler, figs.

22. JAHRBUCH DER KONIGL. PREUSSISCHEN GEOLOGISCHEN LANDESANSTALT UND BERGAKADEMIE ZU BERLIN, xiv, 1894.—Insect borings in the brown coal of Brandenburg, O. von Gellhorn, 1 pl.

23. THE TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1895, pt. 1, April 25, 1895.—A list of the Lepidoptera of the Khasia hills, part iii, Col. C. Swinhoe. Notes on the fungus growing and eating habit of *Sericomyrmex opacus* Mayr, F. W. Urich. On the Longicorn Coleoptera of the West India Islands, C. J. Gahan. Life-history of *Pericoma canescens* (Psychodidæ), Prof. L. C. Miall and N. Walker, 2 pls.; with a bibliographical and critical appendix, Baron Osten Sacken. Questions bearing on specific stability, F. Galton.

24. PROCEEDINGS OF THE ZOOLOGICAL SOCIETY OF LONDON 1894, pt. iv, April 1, 1895.—Descriptions of new species of Coleoptera of the genera *Oedionychus* and *Asphæra*, M. Jacoby.

25. THE ENTOMOLOGIST. London, May, 1895.—On the causes of variation and aberration in the imago state of butterflies, with suggestions on the establishment of new species (cont.), Dr. M. Standfuss, translated by F. A. Dixey. A catalogue of the Lepidoptera of Ireland (cont.), W. F. deV. Kane. Those "jumping eggs," C. C. Hopley.

26. PSYCHE. Cambridge, May, 1895.—On a rational nomenclature of the veins of insects, especially those of Lepidoptera, A. S. Packard, figs. The genus *Oxyptila*, N. Banks. *Colias hecla*, H. Skinner.

27. THE CANADIAN ENTOMOLOGIST. London, Ont., May, 1895.—The Coleoptera of Canada—ix, H. F. Wickham, figs. List of butterflies taken at Winnipeg, Man., 1894, A. W. Hanham. New Tachinidæ with a slender proboscis, D. W. Coquillett. Notes on the Thyatiridæ, H. G. Dyar. Preliminary studies in Siphonaptera—iv, C. F. Baker. Note on the Platypterygidæ, A. R. Grote. Additions to the list of U. S. Hymenoptera, T. D. A. Cockerell. A new Pulvinaria found on Orchids, id. The use of *Megalopyge*, A. R. Grote. Bombycidæ—Zygænidæ, H. G. Dyar.

28. ENTOMOLOGISCHE NACHRICHTEN, xxi, 8. Berlin, April, 1895.—On gall-fly larvæ inhabiting moss, J. J. Kieffer. *Mesotenus* as a parasite of *Eumenes*, H. Friese. In remembrance of Dr. phil. Erich Haase [summary of his contributions to insect phylogeny], C. Verhoeff.

INDEX TO THE PRECEDING LITERATURE.

The number after each author's name in this index refers to the journal, as numbered in the preceding literature, in which that author's paper was published; * denotes that the paper in question contains descriptions of new North American forms.

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C. ERNST SEEBER.

See page 195.

Doings of Societies.

PHILADELPHIA. MAY 14, 1895.

A stated meeting of the Feldman Collecting Social was held at the residence of Mr. H. W. Wenzel, No. 1509 S. 13th St. Members present: Messrs. Bland, Fox, H. W. Wenzel, Laurent, Trescher, E. Wenzel, Johnson, Boerner, Schmitz, Drs. Castle and Griffith. Honorary members: Prof. J. B. Smith and Dr. Henry Skinner. Visitor: Mr. W. J. Gerhard. Meeting called to order 8.50 P.M., President Bland in the chair. Committee on Photograph reported progress, Mr. Wenzel exhibiting a photograph of the late Mr. Seeber, which was obtained from one of the Social's group pictures.

Committee on Resolutions presented the following which was approved "The Feldman Collecting Social having heard with deep sorrow of the death of C. Ernst Seeber, one of its oldest and most assiduous members and former vice-president, be it

Resolved, that it is the sense of this meeting that in the death of our fellow-member and co-laborer, entomology has lost a devoted follower, one whose memory will ever be revered by his associates, who mourn his loss deeply; and that a record of these resolutions be made on our minutes, and a transcript be forwarded to the family of the deceased, as a mark of sympathy in its bereavement.

H. W. WENZEL,
D. M. CASTLE, M. D.,
WM. J. FOX,
} *Committee.*

The committee also presented a memoir on the life of Mr. Seeber, which was read by Mr. Wenzel, and on motion the committee was instructed to have the photograph and memoir published in the columns of the ENTOMOLOGICAL NEWS.

In the death of C. Ernst Seeber, March 28, 1895, entomology, particularly local entomology, loses one of its most arduous followers. Mr. Seeber was born in Gschwend Gaildorf, Würtenburg, Germany, Dec. 21, 1833, and graduated from the high school at Crailsheim. He learned his trade at Backnang, in the same province, where he also took a course in surgery. From Backnang he went to Stuttgart, where he held a position from 1850 to 1853. In the latter year he came to the United States, residing at Trenton, N. J., until 1855, when he came to Philadelphia and started in business. He soon became acquainted with some of the local collectors, and was elected a member of the American Entomological Society in August, 1862.

From boyhood up to the time of his death, entomology was his favorite pursuit, although averse to prominence in the literary field and in systematic work, a fact which is fully attested by the absence of his name from among the contributors to our entomological Journals, and in conse-

quence of which was probably unknown outside of Philadelphia. His keenness of observation, love of nature, and his knowledge of field work placed him among the first rank of collectors, whose work is really the basis of deeper research. He was always willing to impart to others the secrets of mother nature that his sharp sense of discernment may have uncovered. In his early life Lepidoptera was his favorite study, but in later years he became more interested in Coleoptera, of which order he became the possessor of a very large collection, which he finally, after the death of his wife, disposed of. His love for nature was not confined to entomology as a glance at the garden attached to his residence would have shown, and in later years when his business affairs permitted not of excursions to the country, many were the beetles, butterflies, and wasps taken by him on the flowers planted and nursed by him, and which collection he used to take pleasure in dubing "my back yard collections."

At the time of his death he was connected with several German societies, and took an active part in the meetings of the Feldman Collecting Social, of which society he was formerly vice-president, and at which his jovial nature and witticisms were a pleasing adjunct, in fact, his failure to attend a meeting was always considered a matter of regret by his fellow-members. His death was a matter of much regret, and he died as he lived—beloved by all who knew him.

Dr. Skinner exhibited a box of butterflies (*Anthocharis genutia*) collected by Mr. Gerhard and himself on May 5th at Arcola, on the Perkiomen Creek. His object, he stated was firstly to show how Lepidoptera should be caught; secondly how mounted and thirdly how and what data should go on the pin. Prof. Smith remarked, that the weather in the early part of May had proven very unfavorable for the pollination of fruit blossoms by bees; he stated also that he had noticed acre upon acre of one variety of pear, planted throughout Burlington County, N. J., and there was no evidence of bee culture for miles to further pollination; he further stated that what pollination was done, was not done by the honey bee, but by a very small species. Prof. Smith also stated that in the early part of this month he had found a number of infested Kiefer pear trees, and on breaking a number of twigs he found them to contain *Agrilus sinuatus* in the pupa state, it being the introduced European species which he mentioned before as attacking the pear in New Jersey. He had cut quite a number of these twigs, which contained larvæ of the aforesaid species. Mr. Fox exhibited two species of Vespidæ belonging to the genera *Chartergus* and *Polybia* respectively, which showed a remarkable superficial resemblance; both were from Tepic, Mex., and the *Polybia* is a new species. Mr. Wenzel remarked that on May 10th he had noticed the first large flight of *Lachnasterna—micans, hirticula* and *arcuata;* he also exhibited specimens of *Calasoma frigidum* and *Panagæus fascialus* from the low lands below Philadelphia, remarking that they were the first taken by him in this locality. Of *Buprestis ultramarina* he found several speci-

mens on May 5th; also *Cremastochilus harrisi*, in numbers on same date. Mr. Bland mentioned observing near Newton Creek, N. J., on April 14th, *Cicindela repanda* and *C. modesta* congregated in great numbers in a space of about thirty feet in diameter, the specimens being fresh in color, as though just having emerged into the imago form. He had also found near Manyunk, Pa., on May 5th, *Cyllene pictus* very abundant on hickory. Prof. Smith suggested the appointing of a committee empowered to act in reference to a field meeting of the different societies on July 4th. A motion being made and carried to that effect the president appointed Dr. H. G. Griffith and Mr. Wm. J. Fox. No further business being presented the meeting adjourned to the annex at 10.30 P. M.

THEO. H. SCHMITZ, *Secretary*.

ENTOMOLOGICAL SECTION of the Chicago Academy of Sciences.—An informal meeting of this Section was held at the home of A. J. Snyder, 2622 Hartzell Street, North Evanston, Ill., on Friday evening, May 17th. A private collection of Lepidoptera was examined, notes of the season compared, and some collecting done in the evening.

A. J. SNYDER, *Recorder*.

The Entomological Section

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

PROCEEDINGS OF MEETINGS.

APRIL 25, 1895.

A regular stated meeting of the Entomological Section of the Academy of Natural Sciences was held in the Hall, S. W. cor. Nineteenth and Race Streets, this evening, Dr. Geo. H. Horn, director, presiding. Meeting called to order at 8.20 P. M. Members present: Seiss, E. T. Cresson, Fox, Ridings, Liebeck. Associates: Westcott, Bland, Boerner. Mr. William J. Gerhard visitor. The publication Committee reported in favor of the publication of the following papers: "Review of the Stratiomyia and Odontomyia of North America." By Chhas W. Johnson. "List of the Coleoptera of Southwestern Pennsylvania, with Notes of Frequency of Occurrence." By Dr. John Hamilton. "The Species of Dineutes of Boreal America." By Chris. H. Roberts. A letter from Mrs. Peary was read in relation to a Greenland Relief Expedition to bring her husband home. Paper No. 307 was presented for publication. Dr. Skinner exhibited larvæ of *Trogoderma* in great numbers, which had been discovered by Mr. Gerhard in the window ventilator in the room of the Section. Dr. Horn spoke of the larvæ of *Tribolium* being a museum pest, but eating principally paste and cork. He further said the two species had been confounded in collections, *T. ferrugineum* being separated from *confusum* by the last three joints of the antennæ being abruptly broader, while in *confusum* the antennæ are gradually broader to apex. The

speaker also said that *Copturus minutus* had been recently taken on the seashore by the Philadelphia collectors, it being a Southern species. A nearly related species has also been found at Cape San Lucas. The speaker pointed out the differences existing between the species.

Dr. HENRY SKINNER, *Recorder*.

The following papers were read and accepted by the Committee for publication in ENTOMOLOGICAL NEWS:

TWO NEW SPECIES OF CLISTOPYGA.

By G. C. DAVIS.

Clistopyga zonata n. sp. ♀.—Length 6 mm.; ovipositor 1 mm. Black, with white markings; the pleuræ and sternæ of meso- and metathorax rufous, also the scutellum and four posterior coxæ and femora; the antennæ, two stripes on mesonotum and more or less of the anterior portion of the abdominal segments, reddish brown; the face, orbital lines to the back of the occiput, mouth except tips of mandibles, tegulæ, spot beneath, long line in front, postscutellum, spot on outer angles of metathorax, anterior coxæ, all the trochanters and a transverse band near the apex of the first five abdominal segments, white; femora, tibiæ and tarsi of anterior legs, reddish white; tibiæ and tarsi of middle legs white, the tarsal joints more or less tipped with black; tibiæ and tarsi of hind legs white, with a band near the apex of the femora, a band on the second fifth of the tibiæ, and another on the apical two-fifths, and also the tips of the tarsal joints, black. Wings hyaline, iridescent; areolet wanting, with the space pentagonal in outline; mesonotum full, oval, bulging considerably in front; parapsidal grooves nearly obsolete; mesothorax deep; metathorax and abdomen closely and rather coarsely punctured; the first segment of the abdomen has a broad, flat disc near the base, extending to near the middle of the segment, and margined with a small, but distinct carina. The following segments are narrowed at the base and with a shallow transverse depression anterior to the white bands.

One specimen from Dr. W. A. Nason, of Algonquin, Ill.

Clistopyga alborhombarta n. sp. ♀.—Length 6 mm.; ovipositor 1 mm. Black, with white markings; pleuræ and sternum, rufous; face, mouth, scape beneath, orbital lines above antennæ terminating in a large disc on the vertex; tegulæ, spot in front, spot beneath, margins of mesonotum with the lines recurving and uniting before the scutellum; scutellums, pictus, all of the coxæ, four anterior trochanters and five diamond-shaped spots on the abdomen, white; four anterior legs with femora and tibiæ white, spotted more or less with light brown, tarsi white, with joints tipped with brown, terminal joint black at tip; posterior legs white, with basal part of trochanters, a patch on upper terminal third of tibiæ and all of the tarsi, except base of joints, black; the large white spots on the

abdomen are at the base of segments 2–6; the one on segment 2 is rectangular and covers about two-fifths of the segment either way, each succeeding spot becomes transversely elongate, and longitudinally narrowed until the one on segment 6 is quite narrow and less distinct than the others. Wings transparent, iridescent. Antennæ, except scape, black; the body is smooth, shining and with very few punctures. Head small, eyes comparatively large; mesonotum shows the trilobed structure, the anterior lobe having a longitudinal groove in the centre of it; mesosternum much produced beneath, so that the mesothorax is at least twice as deep as the metathorax; metanotum with two longitudinal carinæ and one transverse carina near the apex; tergum of abdomen uneven, the white diamond-shaped spots raised and surrounded by a distinct crenulated channel.

One specimen collected in Florida by Mrs. Annie Trumbull Slosson.

There are seven species in the genus, and the following table may serve as a guide in separating them :

Abdomen entirely black.
  Face and scutellum black.
    Posterior tibiæ black at base . . . . . **canadensis** Prov.
    Posterior tibiæ white at base . . . . . **truncata** Prov.
  Face with white orbits, scutellum white . . . . . **annulipes** Cress.
Abdomen black, with large, central, elliptical, white spots on segments 2–6. **alborhombarta** n. sp.
Abdomen with the apical edges of the segments white.
  Posterior legs black with white annuli . . . . . **zonata** n. sp.
  Posterior legs fulvous, oblique grooves on abdominal segments as in *Glypta* . . . . . **pulchripicta** Ashm.
  Posterior legs white . . . . . **pleuralis** Ashm.

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DESCRIPTIONS OF THE LARVÆ OF THREE SAW-FLIES.

By HARRISON G. DYAR, A. M., New York.

Trichiosoma triangulum Kirby.

Larva.—Large, like *Cimbex*. Head bright straw-yellow, rounded, shagreened, not shiny; width 4.5 mm.; a crease before apex of each lobe; eye on a black spot; a point near it representing the antenna. Body curled spirally, green, covered with white dots; segments about 8 annulate, the annulets and the true segmental incisures about alike; two larger white dots on the subventral folds formed by an aggregation of small dots. Spiracles invert-cordate, black. Thoracic feet large, pale, black tipped. Abdominal feet present on joints 6–12 and 13, pale green. Body higher than wide, slightly smaller posteriorly.

Larvæ not uncommon on the willow and wild cherry at Keene Valley, N. Y., in the Adirondacks. They closely resemble the larva of *Cimbex*

americana in appearance and position, but lack the dorsal line of that species. The cocoon is large, of a firm texture, dark brown.

Lyda ochreata Say.

Solitary web-spinners on hazel (*Corylus rostrata*), many on the same bush, each in a part of a leaf rolled over in a cornucopia-shape and filled with gummy web. Rarely several in one leaf.

Egg shells.—Found singly on the back of the leaf, a thin, white, elliptical skin, 1.5 mm. in size.

Larva.—Head rounded, pale translucent testaceous, with a long pointed antenna before and above the black eye; mouth brown. Width at maturity 1.4–1.5 mm.

A transverse, black, narrow cervical shield; thoracic feet slender, pointed colorless, unused; abdominal none. A pair of jointed, pointed, colorless processes subventrally on joint 13; venter a little flattened; segments indistinctly 4-annulate; color transparent shining greenish, no marks; alimentary canal gives a blackish shade; dorsal vessel darker.

Monophadnus rubi Harris.

Sitting flat on the venter on raspberry leaves, singly; downy and green like the leaf stems, which they closely resemble. Head rounded, mouth pointed, green, pilose, eye black; width 1 mm.; segments obscurely 3-annulate; on second and third annulets a series of Y-shaped setæ, the shaft strong and thick, the limbs pointed, three on each annulet above the spiracle, those on the posterior annulet alternating with those before, placed each a little below the one on the second annulet, the lowest one just on the stigmatal line; two setæ on the uppar part of the subventral ridge (s.-v. ant.), and two on the lower part (s.-v. post.). The upper two on second annulet and upper one on third, have black limbs; all the rest white. Feet on joints 6–12 and 13. Body clear green, a little yellowish; thoracic feet clear, with black tips.

Last stage.—Smooth (no setæ); all translucent green, scarcely shining; width of head 1 mm. Annulets with transverse watery areas and slight irregularities to represent the setæ; segmental incisures a little folded; no marks. Enters the ground on acquiring this stage, and forms a frail cocoon. The change to pupa and imago takes place the following Spring.

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NOTE ON THE FORMS OF ALYPIOIDES.

By T. D. A. Cockerell, N. M. Agr. Exp. Sta.

The occasion of this note is a specimen of *Alypioides* received from Dr. A. Duges, which ought according to the way the species of this genus have been separated, to be new—differing from the two hitherto described about as much as they differ from one another.

I do not, however, take this view, but would rather regard all

the forms of *Alypioides* as representing one species, separable thus:—

(A.) Secondaries above without spots . . . *A. bimaculata* H.-S., 1853 (Mex. and New Mex.).
(B.) Secondaries above with one or more pale spots.
(i.) With a single large spot or patch . . var. *crescens* Walk. 1856 (New Mex. and Calif.).
(ii.) With two spots . . . . . var. *dugesii* nov. (Mexico).

The last mentioned may be more particularly described thus:—*A. bimaculata* var. nov. *dugesii*.—Length of body 17 mm., of anterior wing 21 mm. Like *crescens*, but the light markings creamy white rather than yellow; middle spot on primaries quadrate, and considerably larger than in a specimen of *bimaculata* from Grant County, New Mex. Secondaries above with two large patches, one about the end of the cell, the other nearer the inner margin; also a faint dot near the inner end of the latter one, but apparently situated in the cell. Tongue orange as in the other forms.

Hab.—Guanajuato, Mexico (Dr. A. Duges). One specimen, in coll. Duges. Before venturing on the above remarks, I consulted Mr. Dyar, who writes that he quite thinks I may be correct in regarding these forms as varieties of one; and adds that he agrees that the Guanajuato form should have a name, though as a variety. He further remarks, in confirmation of the view taken, that a specimen of *crescens* in his collection has a trace of the second spot in the form of a little diffuse yellow dot.

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TWO NEW APANTELES.

By CARL F. BAKER, Fort Collins, Col.

Two new species of the genus *Apanteles* recently reared in the Entomological Laboratory of the Colorado Agricultural College seem to be of importance sufficient to warrant their publication.

Apanteles ephestiæ n. sp. ♀.—Length of body 3.6 mm., of antennæ 2.6 mm., ovipositor 1.05 mm. Black, shining; antennæ black, to deep brown at tip; palpi rufous. Legs, except coxæ, rufous, basal portions of anterior and middle femora, all of posterior femora, tips of posterior tibiæ and posterior tarsi, darker; stigma and nervures bounding first submarginal cell outwardly, dark brown; tegulæ yellowish brown. Head transverse, finely punctured, with rather dense pubescence; face below antennæ with a strong median ridge; ocelli prominent and black; mesonotum finely, thickly punctured, with an indication of a median carina posteriorly, and two oblique slightly depressed areas behind converging towards the scutellum; scutel-

lum shining, sparsely indistinctly punctate, anterior groove with about fourteen well marked pits; central fovea of postscutellum semicircular, nearly smooth within, on either side of this a deep sharply margined oblong-elliptical transverse fovea, rugose within; metanotum rugulose, with long sparse pubescence at the sides; medially extending nearly the whole length of the metanotum, a large deep, ovate-elliptical fovea, with a sharp double margin and with about three weak transverse carinæ crossing it within; posterior angles of metanotum acute, somewhat produced, slightly excavated within, the excavated area crossed obliquely by strong rugæ; lateral carinæ gradually diverging cephalad. Abdomen about as long as thorax, beyond first segment ovate elliptical; membranous margins of first and second segments brownish; tergum of first abdominal segment punctato-rugulose, with a large median area which is almost a repetition of that on the metanotum, except that the margins are not so sharply defined, and it is more regularly elliptical; this tergum has also a distinct circular fovea within each posterior angle; tergum of second segment finely obliquely aciculated on either side, leaving a triangular smooth area at base; tergum of first segment one and half times as long as wide at base, slightly broadening caudad, as long as second and third together; tergum of second segment short, nearly three times wider than long, trapezoidal, wider than the first at the suture between them, and two-thirds the length of the third; remaining joints smooth, shining; hypopygium brownish towards the tip, ovipositor black; posterior tibial spines not half the length of the first tarsal joint.

♂.—Tergum of second abdominal segment as wide as the first at the suture between them, much more distinctly trapezoidal than in the female and but little more than twice wider than long. Size somewhat smaller.

Described from four females and one male, reared from the larvæ of *Ephestia kuhniella* working in honey comb, the flies emerging November 22.

Apanteles gillettei n. sp. ♀.—Length of body 2.5 mm., of antennæ 1.5 mm., of ovipositor 2 mm. Black, shining; antennæ deep chocolate, basal joint black; mandibles light brown at tip, palpi honey-yellow distally; coxæ black; femora piceous, the anterior fading to light brown at tip; tibiæ light brown, the middle and posterior darker towards tips; tarsi brownish, posterior darker. Wings iridescent, stigma and veins pale brownish, nearly unicolorous. Head transverse but thick, obsoletely punctured on face, sparsely pubescent; face below antennæ with a strong median ridge; ocelli medium, pale brown to colorless; mesonotum obsoletely punctured, with two very shallow depressed areas on either side posteriorly; scutellum smooth, shining, impunctate, anterior groove with about fourteen well marked pits; central fovea of postscutellum semicircular, with a median carina, on either side a deep oblong-elliptical transverse fovea, rugose within; metanotum coarsely, irregularly rugose, coarser near the posterior angles, non-pubescent, with a well defined

median carina; posterior angles obtusely rounded; lateral carinæ strongly divergent cephalad. Abdomen slightly longer than thorax, beyond first segment ovate-lanceolate; membranous margins of first and second segments brownish; tergum of first abdominal segment coarsely longitudinally rugose, a third longer than wide, sides nearly parallel; tergum of second segment wider posteriorly, and three-fourths length of first, suddenly narrowed to the basal suture, where it is narrower than the first, coarsely longitudinally rugose; remaining segments smooth and shining; ovipositor dark brown; posterior tibial spines not one-half length first tarsal joint. The male differs only in size.

Described from seven females and three males reared from *Cacœcia argyrospila* on apple, the flies emerging June 23.

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CHARACTERS OF A NEW SPECIES OF THELIA.

By E. P. Van Duzee, Buffalo, N. Y.

In looking over my material of *Thelia univittata* a year or two ago I found I had confused two distinct species under this name, one of which appears to be still undescribed. Later I sent an example of the new form to Dr. F. W. Goding, who was then preparing a catalogue of the North American Membracidæ, and he pronounced it identical with some material he had placed under *Thelia cratægi*. In fact, the female does have a stronger resemblance to the female of *cratægi* than to that of *univittata*, but the specimen I have placed as the male of this new species is very close to the male of *univittata*, and not at all like that of *cratægi*. Below is a comparitive description of this new form:

Thelia godingi n. sp.—In Bull. Buffalo Society of Nat. Sciences, v, p. 189, 1894. Female; shorter and stouter than in *univittata* with the pronotum more thickly and evenly punctured and extended to or beyond the tip of the elytral areoles. In *univittata* the punctures are coarser and more irregular, leaving a few scattering callous-like spots and about four longitudinal smooth lines, beginning a little behind the shoulders and becoming connivent or evanescent before the tip, which in this species is more slender than in *godingi* and does not attain the apex of the elytral areoles. These longitudinal lines are more obscure and irregular in *cratægi*, and scarcely or not at all discernible in *godingi*. In this latter species the dorsal hump is nearly vertical before and behind, as wide above as below, with the apex well rounded and showing a slight inclination to become pointed at the middle. In *cratægi* the edges of the hump are parallel, but the anterior apical angle is rounded off, and the posterior is subacute. In *univittata* this protruberance is proportionately longer and more slender, and quite distinctly inclined forward with its apex

shaped about as in *cratægi*. Color: pronotum of *univittata* cinerous, punctured with blackish, and marked as in our other species with three black points over each eye, and a vertical black line before reaching to the tip of the dorsal horn; the punctures are fewer and more shallow toward the shoulders, leaving these parts paler; dorsal ridge marked with a broad white line, bordered with brown and extending from the tip of the horn to the apex of the elytra. This dorsal white line is a little narrower in *godingi*, and may become diffuse before the posterior tip through coalesance with a transverse, pale, anteapical band, which is more or less strongly indicated in this species. The anterior black vertical line is usually broken in *godingi*, and the punctures are concolorous with the surface of the pronotum which is marked as in *cratægi*, but usually with the pattern less clearly contrasted. The markings of this latter species are well represented by Emmons in the Nat. Hist. of N. Y. Agriculture vol. v, pl. iii, fig. 2, but he has figured the dorsal horn as longer and more slender than in any specimen I have seen.

The male of *godingi* scarcely differs from that of *univittata*, the characteristic markings being almost obliterated by dusky mottlings. In *cratægi* the markings are as clearly defined as in the female, but the dorsal horn is less elevated, though of about the same form as in the female.

This is an interesting addition to our described Membracidæ, of which I have taken a number of individuals about Buffalo, mostly on bushes of wild black cherry in June and July.

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SOME MISSOURI SPIDERS.

By NATHAN BANKS.

The following spiders were collected in Missouri by my friend, Mr. Gilbert Van Ingen, in 1890. They were captured mostly near Springfield, in the southwestern part of the State:

DRASSIDÆ.

Micaria agilis nov. sp.—Length 5 mm. Cephalothorax, mandibles and sternum yellow, or pale yellowish brown; legs white, base of femur i brown, posterior pairs faintly lineated with brown; abdomen gray or blackish, with golden scales, distinctly constricted just before the middle, where there is an interrupted band of white scales, often another white band nearer the base; there are some scales near the tip with a greenish reflection; p. m. e. nearer to the p. s. e. than to each other.

I also have it from Washington, D. C., and Sea Cliff, N. Y. It is readily recognized by its generally pale color. It may have

been mistaken for *Herpyllus auratus* Hentz, but Hentz neither figures nor mentions any constriction to the abdomen of his species.

Prosthesima ecclesiastica Hentz

CLUBIONIDÆ.

Thargalia trilineata Hentz
" *longipalpis* Hentz
Anyphæna gracilis Hentz
Gayenna saltabunda Hentz
Trachelas tranquilla Hentz

AGALENIDÆ.

Agalena nævia Hentz
Cicurina arcuata Keys
Cœlotes medicinalis Em.

DICTYNIDÆ.

Dictyna sublata Hentz
" *volucripes* Keys
Titanœca americana Em.

THERIDIDÆ.

Theridium tepidariorum Koch.
Lathrodectes mactans Koch.
Teutana triangulosa Walck.
Steatoda borealis Hentz
Asagena americana Em.
Floronia clathrata Koch.
Linyphia phrygiana Koch.
" *marginata* Koch.

Ceratinopis laticeps Em. (*Erigone zanthippe* Keys). This species, which I also have from Ithaca and Sea Cliff, N. Y., is certainly Keyserling's form; and I think that it is the ♀ of Emerton's *C. laticeps*.

EPEIRIDÆ.

Acrosoma rugosa Hentz
" *spinea* Hentz
Mahadeva verrucosa Hentz
Epeira insularis Hentz
" *trifolium* Hentz
Epeira trivittata Keys.
" *domiciliorum* Hentz
Argiope transversa Em.
Argyrœpeira hortorum Hentz
Tetragnatha laboriosa Hentz

THOMISIDÆ.

Xysticus nervosus Bks.
" *gulosus* Keys.
Coriarachne versicolor Keys.
Misumena oblonga Keys.
" *rosea* Keys.
Philodromus vulgaris Hentz

LYCOSIDÆ.

Lycosa carolinensis Hentz
" *erratica* Hentz
" *babingtoni* Blk.
Lycosa scutulata Hentz
" sp.?

One ♀ 14 mm. long, of not very definite characters, but unknown to me.

Lycosa missouriensis nov. sp.—Length 18 mm.; ceph. 9 mm., breadth of ceph. 6 mm. Leg i, 21 mm., leg iv, 25 mm., mandibles 4.5 mm. Cephalothorax dark red-brown, with rufous hair, blackish in eye-region; mandibles dark red-brown, with white hair; sternum and coxæ pale yellowish, with white hair; femora and patellæ yellow-brown; tibiæ, metalarsi and tarsi of legs i and ii almost black, and more densely clothed with whitish hair, those of posterior legs not much darker than the femora; abdomen above dark uniform brown, densely clothed with brown hair, below paler brown. The cephalothorax is regularly arched, quite high in front and the highest just behind the dorsal eyes; the first eye-row is a little shorter than the second, and nearly straight; the eyes of second row are about their diameter apart; the third row is plainly wider than the second, and the eyes equal to those of the second, from which they are situated about once and a half their diameter; the mandibles are very large and stout; the sternum broad; the legs stout and of moderate length; on tibia i, there are two spines on inside, two below and a pair at tip, on tibia iv, two on inside, two on outside, and three pairs below. The epigynum consists of a shallow reddish depression, fully twice as long as broad, rounded in front and slightly narrower behind, where its corners are elevated and blackish, a narrow elevated septum passes through it, being highest between the black posterior corners.

One female.

Pardosa obsoleta Bks.? A young specimen.
Pardosa sp.? young ♂
Pirata montanoides Bks.
Dolomedes tenebrosus Hentz
" *sexpunctatus* Hentz
Pisaura undata Hentz

OXYOPIDÆ.

Oxyopes salticus Hentz

ATTIDÆ.

Phidippus audax Hentz
Philæus militaris Hentz
Plexippus putnami Peck
Dendryphantes octavus Hentz

Attus concolor nov. sp.—Length 35 mm., ceph. 15 mm. long, 1 mm. wide. Cephalothorax yellow-brown, eyes surrounded by black, eye-region blackish; abdomen mottled with gray and white; legs white, tips of joints and two rings on the femora blackish; base of palpus pale, last two joints dark; sternum gray; mandibles yellow, some golden hairs around anterior eyes. Cephalothorax widest a little behind dorsal eyes, eye-region a little wider behind than in front, dorsal eyes not much smaller than the lateral, eyes of second row a little nearer dorsal than lateral eyes. Anterior coxæ separated by more than width of lip; fourth leg much the longest, i, ii and iii subequal, their joints short; metatarsus iv, spined to base. Abdomen

but little longer than cephalothorax and slightly broader. The epigynum consists of a shallow pear-shaped depression, in the anterior portion of which is a small hole connected by a line each side with two similar holes in the posterior portion.

One female.

Epiblemum scenicum Clerk.
Icius mitratus Hentz
Marptusa familiaris Hentz
Saitis pulex Hentz
Habrocestum cristatum Hentz
" *cæcatum* Hentz.
Synageles scorpiona Hentz
Synemosyna formica Hentz

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ON THE OCCURRENCE OF THE TACHINID GENUS HETEROPTERINA Macq. IN NORTH AMERICA.

By D. W. COQUILLETT, Washington, D. C.

In the Annales Soc. Ent. de France for December, 1888, on page 262, Bigot describes a Tachinid under the name of *Heteropterina spinulosa*, which he credits to North America; this is the first record of the occurrence of this genus in our fauna, and in the Transactions Amer. Ent. Soc. for June, 1892, page 133, Townsend discredits this generic reference, stating that the species in question probably belongs to *Plagia*. There is a probability, however, that Bigot was correct. I have recently examined specimens collected by Dr. Nason, in northern Illinois, which certainly belong to *Heteropterina* as defined by Brauer and Berganstamm, Schiner and Rondani. The form is a very striking one, owing to the great distance intervening between the very oblique hind cross-vein and the hind margin of the wing, the last section of the fifth vein being longer than the penultimate section; the bend of the fourth vein is furnished with a spurious vein which almost equals the apical cross-vein in length. In Townsend's table of Tachinid genera (l. c.) this genus would fall in couplet 46, but will be readily distinguished by the characters mentioned above. Judging from Bigot's description, his species differs from the one now before me by its wholly black abdomen and legs, besides in being nearly twice as large. The present species may be characterized as follows:

Heteropterina nasoni n. sp. ♂.—Head black, face and sides of front silvery white pollinose, frontal vitta grayish black, at its narrowest part less than one-fifth as wide as the front; frontal bristles descending nearly to middle of second antennal joint, the upper five in each row curving

backward, the others decussate; the front pair of ocellar bristles and the two pairs of orbital bristles directed forward; vibrissæ inserted slightly above the oral margin, only two or three bristles above each; pile on sides of face microscopic and very sparse; cheeks scarcely one-fifth as broad as the eye-height. Antennæ three-fourths as long as the face, first two joints yellow, the third black and less than one and one-half times as long as the second joint; arista black, thickened on its basal third; proboscis three-fourths as long as height of head, black, the labella and palpi yellow. Thorax black, gray pollinose, marked with three brownish vittæ; three postsutural bristles; scutellum black, gray pollinose, a small discal and three long marginal pairs of macrochætæ, the third pair decussate and not quite reaching the tips of the second pair. Abdomen yellowish, the extreme base and the greater portion of the fourth segment blackish; wholly gray pollinose except a transverse row of three shining blackish spots on the hind end of each segment, those on the fourth segment sometimes coalescing; an opaque black spot on the extreme sides of each segment except the first, sometimes wanting on the second; a marginal pair of macrochætæ on each of the first three segments, sometimes wanting on the first, and a marginal row of eight on the fourth; hypopygium shining black, toward its apex yellowish, projecting one-third its height below the plane of the venter, its tip furnished with a stout black claw, which projects forward; underside of the fourth abdominal segment considerably swollen. Legs black, the front and middle tibiæ yellowish, hind ones not ciliate; pulvilli about as long as the last tarsal joint. Wings grayish hyaline, veins brown, third vein bristly nearly to the small cross-vein, the others bare; calypteres white, halteres yellow.

♀.—Differs from the ♂ only as follows: front largely brassy yellow pollinose, extreme base of abdomen yellow, middle of second segment and nearly the whole of the two following ones blackish, all femora and tibiæ yellow, pulvilli about one-third as long as the last tarsal joint; genetalia not projecting. Length 3.6–4.3 mm.

Northern Illinois, four males and nine females collected from July to September, 1894, by Dr. W. A. Nason, after whom I take great pleasure in naming this interesting species.

ERRATA.

Page 148, fifth line from top, for there *read* them.
" 148, eighth line from top, for *Ceoropia* read *Cecropia*.
" 149, eleventh line from bottom, for *Prunes* read *Prunus*.
" 150, ninth line from top, for paper *read* pupa.

ENTOMOLOGICAL NEWS for May, was mailed April 27, 1895.